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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/726,147

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Troy L. Walsh

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SUD-CHEMIE INC.  
1600 WEST HILL STREET  
LOUISVILLE, KY 40210

EXAMINER

NGUYEN, CAM N

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/726,147

Applicant(s)

WALSH ET AL.

Examiner

Cam N. Nguyen

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02/28/06 an amendment/response.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/23/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### **Response to Amendment**

1. Applicants' amendment and remarks, filed February 28, 2006, has been made of record and entered. Claims 4-5, 7-9, 12-13, 15-16, & 18 have been amended. Claim 20 has been canceled. Claim 21 has been added.

Claims 1-19 & 21 are currently pending and under consideration.

### **Terminal Disclaimer**

2. The terminal disclaimer filed on 2/24/06 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of Copending Application No. 10/726,171 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### **Claim Objections**

3. Claims 1, 7-8, 11, & 16 are objected to because of the following informalities:

A. In claims 1, 11, & 16, line 1, --supported—is suggested insert after “lanthanum”.

B. In claims 1, 11, & 16, line 2, “titanium dioxide” is suggested changed to --TiO<sub>2</sub>-- (to be consistent with the language recited in the dependent claims).

C. In claim 7, line 2, the period -- . -- should be inserted at the end of the claim.

D. In claim 8, line 1, “platinum:rhenium” should be changed to --platinum to rhenium-- (to be consistent with the language recited in claims 7, 14, & 19).

Appropriate correction is required.

**Claim Rejections - 35 USC § 112 (Second Paragraph)**

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7-8, 14, & 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear as to whether the platinum to rhenium (or Pt:Re) ratio is the molar ratio or weight ratio. Thus, renders the claims vague and indefinite.

**Claim Rejections - 35 USC § 102(e)**

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 9, & 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Chettouf et al., "hereinafter Chettouf", (US 2004/0179995 A1).

Chettouf discloses a catalyst comprising titania carrier (see page 4, right hand column, claim 9). The catalyst comprises one or more metals or metal oxides selected

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from a group which includes lanthanum, platinum, rhenium, cerium, and zirconium (where cerium and zirconium can be the claimed additives) (see page 3, left hand column, paragraphs [0024] through [0027]). The titania having a surface area of between 20 and 250 m<sup>2</sup>/g, preferably between 30 and 80 m<sup>2</sup>/g (see page 3, paragraph [0022]). Chettouf further discloses that the titania in the form of anatase, rutile as well as all kind of mixtures or intermediate may be used as a carrier (see page 1, paragraph [0011]).

No patentable distinction is seen between the claimed catalyst and that disclosed by Chettouf. Thus, the claims are anticipated by the reference.

**Claim Rejections - 35 USC § 103**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-19 & 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speer (US Pat. 6,315,963 B1) taken together with Komatsu et al., "hereinafter Komatsu", (US Pat. 6,121,191).

Speer discloses a photocatalyst which comprised of TiO<sub>2</sub> doped with 1-5 wt.% platinum (Pt), 1-5 wt.% cerium (Ce), and 1-5 wt.% lanthanum (La), said TiO<sub>2</sub> comprised of at least 50% anatase titanium dioxide crystal with the balance either rutile and/or amorphous (see col. 12, claims 13-14). The photocatalyst is: (1) metallized with at least

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one metal from the group consisting of metals including Re and Mo; and/or (b) doped with at least one of the f-transition elements selected from the Lanthanide or Actinide series (see col. 12, claim 15). See also col. 9, ln 24-53.

While Speer does not specifically teach to use a high surface area rutile  $\text{TiO}_2$ , it would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have substituted the  $\text{TiO}_2$  of Speer with a high surface area rutile  $\text{TiO}_2$  support as taught by Komatsu in order to achieve an improved catalyst having the photocatalytic efficiency advantage as disclosed in Komatsu (see Komatsu at col. 1, ln 8-17).

Komatsu discloses a photocatalyst supported ultra-fine particles, wherein the ultra-fine metal particles selected from the group consisting of Pt, Au, Pd, Rh, Ru and Ag, etc. supported on fine particles of a rutile type titanium dioxide (see col. 25, claim 1).

With respect to the claimed surface area of  $\text{TiO}_2$  in claims 1-3, 11, & 17, it is considered the same titanium dioxide support material would possess the same surface area or would be expected to have the same surface area since both applicants and Komatsu disclose the same titanium dioxide having the same rutile crystal structure.

As concern with claims 4, 12, & 18, the claimed La concentration is met by the teaching of the reference since the disclosed range falls within the claimed range (see above).

As concern with claims 5-8, 13-14, 16, 19, & 21, while Speer does not disclose the claimed Pt:Re metal ratios, it is consider the amounts of Pt and Re can be optimized

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by a person having the ordinary skill in the art the time the invention was made in order to achieve an effective catalyst, in view of In re Boesch.

As concern with claims 10 & 15, the claimed additive concentration is met by the teaching of the reference since the disclosed range falls within the claimed range (see above). It is noted that minimum requirement for the concentration of the additive in the claims is "0" due the phrase "up to" without reciting any specific amount in the lower range.

#### **Response to Applicants' Arguments**

10. Applicants' response, filed on February 28, 2006, to the office action dated 09/23/05 has been considered, but not deemed persuasive in view of the new ground of rejections above.

#### **Citations**

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. All references are cited for related art. See PTO-892 Form prepared attached.

#### **Conclusion**

12. Claims 1-19 & 21 are pending. Claims 1-19 & 21 are rejected. No claims are allowed.


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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cam N Nguyen, whose telephone number is 571-272-1357. The examiner can normally be reached on M, W, R, & F, 9:00 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nguyen/cnn  
May 06, 2006

  
CAM N. NGUYEN  
PRIMARY EXAMINER

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